



Artificial intelligence

Part of a series on

Artificial intelligence (AI)



Major goals

Artificial general intelligence · Intelligent agent · Recursive self-improvement · Planning · Computer vision · General game playing · Knowledge reasoning · Natural language processing · Robotics · AI safety

Approaches

Machine learning · Symbolic · Deep learning · Bayesian networks · Evolutionary algorithms · Hybrid intelligent systems · Systems integration

Applications

Bioinformatics · Deepfake · Earth sciences · Finance · Generative AI (Art · Audio · Music) · Government · Healthcare (Mental health) · Industry · Translation · Military · Physics · Projects

Philosophy

Artificial consciousness · Chinese room · Friendly AI · Control problem/Takeover · Ethics · Existential risk · Turing test · Uncanny valley

History

Timeline · Progress · AI winter · AI boom

Glossary

Glossary

Artificial intelligence (**AI** or **A.I.**) is a computer program or a machine that is able to learn and mimic human cognition.^{[1][2]} Sometimes, AI is used to talk about neural networks or deep learning.^[3]

Artificial intelligence is a system's ability to understand external data, to learn from that data, and to use what it has learned to achieve specific goals or tasks through adaptation.^[4]

Artificial intelligence is widely applied in speech recognition, image recognition, robotics, autonomous systems, natural language processing, machine translation, predictive analytics, medical diagnostics, fraud detection, and the control of physical processes.

Origin of name

John McCarthy came up with the name, "artificial intelligence" in 1956. Intelligence allows an organism to act in a meaningful way in its environment. It includes the ability to get sensory inputs, and to react to these.

Laws

The European Union made a law (2024's second quarter) about *artificial intelligence*. It is the world's first law that regulates AI.^[5]

Connecticut and Colorado tried to pass laws (in 2024) regarding use of AI.^[6]

History

AI research started with a conference at Dartmouth College in 1956. It was a month-long brainstorming session many people who like AI came to. At the conference, they wrote programs which were able to beat humans at checkers or solving word problems. The Department of Defense started giving a lot of money to AI research, and labs were created all over the world.

In a paper on AI, mathematician James Lighthill wrote "~~no aspect of the discipline has so far seen discoveries generated the huge influence that was previously anticipated~~ In no part of the field have the discoveries made so far produced the major impact that was then promised." (https://www.chilton-computing.org.uk/inf/literature/reports/lighthill_report/p001.htm). The governments of the US and UK decided to spend money on other projects which caused little new research to be done. This was known as an "AI winter."^[7]

In the 90s and early 2000s, AI became important again in data mining and medical diagnosis. This was possible because of faster computers and focusing on solving more specific problems.

In 1997, the chess computer Deep Blue became the first computer program to beat chess world champion Garry Kasparov. In 2011, IBM Watson beat the top two Jeopardy! players Brad Rutter and Ken Jennings. In 2016, Google's AlphaGo beat top Go player Lee Sedol 4 out of 5 times.

The idea is perhaps much older. Julien Offray de La Mettrie (1709-1751) was a materialist thinker of the Enlightenment. In his work of 1748, L'Homme Machine, he had the idea that both matter and life organized themselves.^[8] He is seen as one of the precursors of Darwin's theory of evolution.^[9] Today, one field of artificial intelligence, called *strong artificial intelligence* wants to build a machine that can think like a person.^[10] However, *weak artificial intelligence* is about building a system that can support a human. One of the key problems is to make systems that can model wikt:uncertainty. Most of the time, this is done with probability theory and statistics.

Future of AI

Someday, AI researchers hope to create computer programs that can learn, solve problems, and think logically. A great intelligent machine is flexible and perceives what is around it. It would use what it learns to make its chance of success at some goal better. Researchers hope to make a "Artificial general intelligence" which can solve many problems instead of focusing on just one. Researchers are also trying to make creative and emotional AI which could create art.^{[11][12]}



Deep Blue, a chess computer that became famous (1997)

Uses

Artificial intelligence is used in many different areas today.

- **Healthcare** (see Artificial intelligence in healthcare) AI helps doctors diagnose diseases and find treatments for patients.
- **Industry-specific tasks**; AI applications are used to solve problems in a workplace, industry, or institutions.
 - **Finance**: Banks use AI to find fraud and make trading decisions.
- **Customer service**: Many companies use AI chatbots to answer customer questions and provide support.
- **Personal assistants**: AI assistants like Siri and Alexa help people manage their daily tasks.
- **Entertainment**: AI is used in video games to create smart, responsive characters and stories that change in fun ways based on what the player does. AI is used to create videos now-a-days by using different models like Sora.

Those subjects are part of Game artificial intelligence.

- Military (Military artificial intelligence)
- Generative AI (or Generative artificial intelligence)

Some software has become well-known, such as ChatGPT (a chatbot and virtual assistant).

Faster computers, deep learning, and more data have made AI popular throughout the world. AI has been successful with decoding human speech, playing games (like chess and Go), self-driving cars, and understanding complex data. AI and machine learning technology is used in applications including: search engines, recommendation systems, virtual assistants, autonomous vehicles, automatic language translation, facial recognition, image labeling, advertising, and driving internet traffic.

Domains

There are different domains of artificial intelligence.

- Pattern recognition like speech, writing, and handwriting
- Knowledge engineering like logic programming and inference engines
- Expert systems for question answering and Chatbots
- Machine learning
- Artificial neural networks and deep learning
- Computer vision
- Robotics
- General game playing
- Artificial life

Types and classes

Researchers Kaplan and Haenlein say there are three types of AI system: analytical, human-inspired, and humanized artificial intelligence.^[4]

- *Analytical A.I.* has similarities with cognitive intelligence which tries to understand the world and make decisions based on that.
- *Human-inspired A.I.* which tries to be more "human" with cognitive intelligence with emotional intelligence.
- *Humanized A.I.* is able to understand human social activity and is able to be self aware^[13]

Controversies

In 2025, a municipality in Norway made a report in regard to permanently closing down (some) schools; The report used ghost source (or fictitious sources); Those sources were claimed to be the works of two (named) professors; The municipality admitted that the report was made [partly] by A.I.; The process of closing down schools, has stopped (as of March).^[14] An official that was involved, resigned (or left her job) one month later.^[15] (See Hallucination, artificial intelligence)

Other information

Glossary:

Agentic A.I. "is an autonomous AI system that can act independently to [finish or] achieve pre-determined goals", according to media.^[16] A.I. agents "are small, specialised pieces of [computer programs or] software that can make decisions and

[work or] operate cooperatively or independently" to [... reach goals that are called] system objectives", according to media.^[17](A decision, in a decision problem within computer science, "[is supposed to give or] requires a yes or no answer", according to media.)^[18]

A.I. chips are a kind of computer chip, according to media.^{[19][20]}

Limits of AI

Researchers didn't know how difficult several issues were. They still couldn't offer computers things like emotions or common sense.^[21] So far, most AI programs only do what computers can do well like searching databases or doing calculations.^[22] AI is not able to sense and understand what is happening around itself because of problems with what computers can do.^[23] Computers can do some things like learning and problem solving, but not in the same way as people do.

Related pages

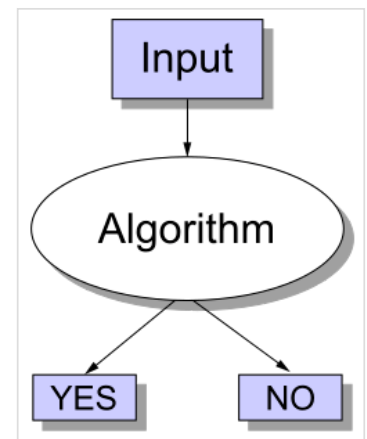
- Data mining
- Information storage systems (or *Computer data storage*)
- OpenAI (a company)

Books

- Russell, Stuart J.; Norvig, Peter. (2021). *Artificial Intelligence: A Modern Approach* (4th ed.). Hoboken: Pearson. ISBN 978-0134610993. LCCN 20190474 (<https://lccn.loc.gov/20190474>).
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A decision problem has only two possible outputs, yes or no (or alternately 1 or 0) on any input.. Related page, Algorithm

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